

The Grasp and Release Test (GRT)

Assessment Overview

Assessment Area

ICF Domain:

Activity

Subcategory:

Mobility

You Will Need

Length:

20 minutes, 6 items

Equipment:

Peg, paperweight, fork, block, can, videotape

Scoring:

Clinician-administered.

Participants are scored on their ability to successfully move each of the objects; the number of successes and failures in 30 seconds is recorded. Item score is the mean number of successes in 5 trials. Total score is the sum of item scores.

The test is done separately on both hands.

Summary

The Grasp and Release Test (GRT) is designed to assess hand neuro-prosthesis in individuals with C5-C6 SCIs, but has also been used to assess hand function prior to and following tendon transfers in people with C6-7 level injuries.

It assesses the ability to pick up, move, and release six objects of varying sizes, weights and textures using a palmar or lateral grasp. Each object was chosen to represent one or more objects routinely manipulated for activities of daily living (ADL) that represented a range of difficulties.

Availability

Worksheet: Can be found [here](#).

Languages: English

Assessment Interpretability

Minimal Clinically Important Difference

Not established in SCI

Statistical Error

Not established in SCI

Typical Values

Not established in SCI

Measurement Properties

Validity – **Moderate** to **High**

Moderate to High correlation between 12 month Functional Independence Measure (FIM) Scores and:

Fork = 0.624

Can = 0.700

Videotape = 0.503

Correlation between 12-month FIM and the peg, block, paperweight and total number of objects successfully manipulated were non-significant.

(Mulchahey et al. 2004; n=19, tetraplegia, no information on chronicity)

High correlation between GRT and Van Lieshout Test:

Left hand = 0.87

Right hand = 0.90

(Post et al. 2006; n=55, 46 males, tetraplegia, mean time since injury (SD): 11 (8.5) years)

Number of studies reporting validity data: 3

Reliability – **High**

High Test-retest Reliability for all 6 items:

Fork: ICC = 1.00

Paperweight: ICC = 1.00

Videotape: ICC = 1.00

Block: ICC = 0.87

Peg: ICC = 0.93

Can: ICC = 0.99

(Mulchahey et al. 2004; n=19, tetraplegia, no information on chronicity)

Number of studies reporting reliability data: 2

Responsiveness

Floor/Ceiling Effect:

Not established in SCI

Change between baseline and post-rehabilitation GRT scores:

Fork: $z=3.05$ ($P<.01$)

Paperweight: $z=2.83$ ($P<.01$)

Can: $z=2.66$ ($P<.01$)

Total GRT objects manipulated:

$z=3.40$ ($P<.05$)

z = Wilcoxon matched pairs signed-rank test

(Mulchahey et al. 2004; n=19, tetraplegia, no information on chronicity)

Number of studies reporting responsiveness data: 1